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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/843,534

04/25/2001

William Roberts

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10/01/2004

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 09/843,534 | Applicant(s) ROBERTS ET AL. | |
| | Examiner Prasad R Akkapeddi | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 67-114 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 67-114 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>02/03/03 & 08/03/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claim Objections

2. In view of the amendments submitted on 07/08/2004, the previous claim objections have been withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 67, 69-70, 72-76, 79-82, 84-87, 89-90, 92-96, 99-102 and 104-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (Uehara) (U.S. Patent No. 5,659,376) in view of Yamada et al. (Yamada) (U.S. Patent No. 5,508,834).

a. As to claims 67, 84-87 and 104-114: Uehara discloses a liquid crystal display apparatus and in the description of the prior art (Fig. 2) discloses a housing (125) with an aperture (opening in the front that can be seen just under the sheet 111), a plurality of housing elements (112, 105, 100B etc.), a liquid crystal display panel (101) mounted within the housing and optically aligned with the aperture (as can be seen from Fig. 2), the display having an image plane (due to the nature of the liquid crystal display), a first side (101a) and a second side (101b). Uehara also discloses a polarizer (118) disposed relative to the first side of the display (101a) and is mounted to be optically aligned with the aperture (as can be seen from Fig. 2) and mechanically spaced from the image plane by a distance.

Uehara also discloses a second polarizer (119) disposed relative to the second side (101b) of the display and is mechanically secured and spaced by the housing (125) from the image plane by a distance.

Although Uehara teaches that the polarizers (118 and 119) are spaced mechanically a distance from the image plane, Uehara does not teach that such a placement of the polarizers will minimize the visibility of the defects to a viewer.

Yamada also discloses a liquid crystal display device having polarizers having a liquid crystal panel (5), a liquid crystal display having an image plane, a first side and a second side (Fig. 7), a first polarizer (8) disposed relative to the first side of the display and is mechanically spaced by the housing (transparent cover plate, 6) by a distance such that the first polarizer (8) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24). Since a viewer's eye has a lens, the out of depth of focus as taught by Yamada will minimize the visibility of the defects to the viewer.

Yamada also discloses a second polarizer (9) disposed relative to the second side of the display and is mechanically spaced by the housing (transparent cover plate, 7) by a distance such that the second polarizer (9) defects (foreign matter, dust or fluff, col. 4, line 18) are out of depth of focus of the lens system (col. 4, lines 1-24). Since a viewer's eye has a lens, the out of depth of focus as taught by Yamada will minimize the visibility of the defects to the viewer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the spacing of the polarizer from the image plane of the display as taught by Yamada to the display of Uehara to provide a panel structure in which an image quality would not be adversely affected even if foreign matter such as dust or fluff is attached to the polarizing plates (col. 2, lines 13-17).

- b. As to claims 69-70 and 89-90: Both Uehara and Yamada disclose a second polarizer disposed that is mechanically spaced by the housing by a distance such that the second polarizer defects (foreign matter, dust or fluff, col. 4, line 18 of Yamada) are out of depth of focus of the lens system (col. 4, lines 1-24 of Yamada).
- c. As to claims 72-76 and 92-96: Both Uehara and Yamada disclose the mechanical spacing of the first and second polarizers from the image plane with the housing, mounting with receptacles (125 of Uehara) (Fig. 2), plurality of housing elements including color filters (Fig. 8 of Yamada) and in a backlight (Fig. 2, 104 of Uehara) to provide the illumination light.
- d. As to claims 79-82 and 99-102: Both Uehara and Yamada disclose the display that has a first surface and a second surface, first polarizer and the second polarizer located at a first and second distances from the respective surfaces. Yamada also discloses a lens and the first polarizer substantially parallel to the display. In Fig. 6, Yamada discloses a variation where the first polarizer is located between the display and the transparent cover that includes the lens as shown in Fig. 7 of Yamada.
- e. As to claims 107-114: Uehara teaches that a first polarizer (118) is attached to a protective plate (111) and that the protective plate with the polarizer (acts like a unified polarizer) is mechanically spaced by the housing from the image plane. Since the protective plate with the polarizer rests on the housing (125), it does not require any adhesives.

5. Claims 68, 71, 88 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara in view of Yamada and further in view of Mizuno et al. (Mizuno) (U.S. Patent Application Publication US2002/0098344) and Hopper et al. (Hopper) (U.S. Patent No. 4,388,375).

Both Uehara and Yamada disclose a display system with a first polarizer and a second polarizer having defects and an arrangement where these polarizers are placed at a distance and Yamada teaches that these defects are out of the depth of focus of a lens system.

However, neither Uehara nor Yamada disclose the size of the defects.

Mizuno in disclosing an optical adhesive film formed of a polyester film teaches that foreign substance particles (defects) for these films have a maximum size of 20 micrometers or more (paragraph 0011), which meets the limitation of greater than 10 micrometers recited in the instant claims. (Hopper's reference is used for the teaching that polarizers are made from polyester films).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the defect size having greater than 10 micrometers as disclosed by Mizuno in view of Hopper to the polarizers of Uehara and Yamada to provide films that are superior in transparency, adhesiveness, thermal shrinkage and optical defects (para 0018 of Mizuno).

6. Claims 77 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara in view of Yamada and further in view of Sawa Tetsuo (Sawa) (JP 06273760) (disclosed by the Applicant).

Uehara discloses one diffuser (106).

However, Uehara does not disclose two diffusers.

Sawa in disclosing a back light unit (23) discloses two diffusers 11 and 34.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the two diffuser configuration as disclosed by Sawa to the display of Uehara and Yamada to provide a backlight unit capable of performing back illumination more uniformly (see purpose).

7. Claims 78,98, 83 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara in view of Yamada and Sawa as applied to claims 77,97, 67 and 87 and further in view of Mori (U.S.Patent No. 6,288,700).

As to claims 78, 98, 83 and 103: Yamada does not disclose that the backlight consists of an LED or the size of the display.

Mori in disclosing a light emitting flat panel device used as a backlight for mono-color or multi-color image displays, discloses LED sources (4R,4G,4B) and also discloses that displays of any size from small to large can be realized (col. 2, line 5). Hence the display size having a diagonal of less than one inch as recited in claims 83 and 103 would have been obvious.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the LED sources as disclosed by Mori to the display of Yamada and Nosker to obtain very thin and high brightness devices with low power consumption and having varying sizes and low manufacturing costs and ease of manufacturing (col. 2, lines 1-7).

Response to Arguments

8. Applicant's arguments with respect to claims 67-106 have been considered but are moot in view of the new ground(s) of rejection.

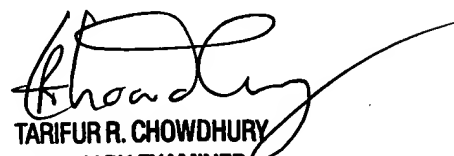
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 571-272-2285. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PRA

Prasad R Akkapeddi, Ph.D
Examiner
Art Unit 2871


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER